

Claims

1. A metal molding method in which using a mold having a molding space with a predetermined shape and a metal body lead-in space communicating with the molding space, a metal body which is inserted into the metal body lead-in space is fed to the molding space under a predetermined pressure thus forming a molded body having a predetermined shape.

2. A metal molding method according to claim 1, wherein the metal body is deformed by shearing at the time of feeding the metal body into the molding space from the metal body lead-in space thus turning the metal structure of the metal body into the finer grain structure.

3. A metal molding method according to claim 1, wherein at least one of the metal body lead-in space and the molding space includes a bent portion which bents the fed metal body .

4. A metal molding method according to claim 1, wherein a communicating region which is communicated with the metal body lead-in space and a molding region which molds the metal body which passes through the communicating region into a predetermined shape are formed in the molding space and, at the same time, the feeding direction of the metal body to the molding region from the communicating region and the feeding direction of the metal body in the metal body lead-in space are made different from each other.

5. A metal molding method according to claim 4, wherein the metal body which passes through the molding region is allowed

to project to the outside of the mold, and a projecting portion is molded by pressing into a predetermined shape.

6. A metal molding method according to claim 4, wherein the molding region is formed in an approximately cylindrical shape which extends using the communicating region as a proximal end thereof and, at the same time, a hole forming pin which extends toward the proximal end from a distal end of the molding region is arranged in the molding region, and a cylindrical portion is formed in a molded body.

7. A metal molding method according to claim 6, wherein a cylindrical collar which brings an inner peripheral surface thereof into slide contact with the hole forming pin and an outer peripheral surface thereof into slide contact with an inner peripheral surface of the mold in the molding region is mounted on the hole forming pin and, along with the feeding of the metal body into the molding region, a communicating-region-side end surface of the collar is gradually moved to a distal-end side of the molding region.

8. A metal molding method according to claim 7, wherein the collar is moved along the hole forming pin by a predetermined distance and, thereafter, the hole forming pin is pushed into the communicating region.

9. A metal molding method according to claim 8, wherein when the hole forming pin is pushed into the communicating region, a cylinder which supplies the metal body into the metal body lead-in space by pressing is retracted.

10. A metal molding method according to any one of claims

1 to 9, wherein a plurality of metal body lead-in spaces are provided.

11. A metal molding machine comprising a mold in which a molding space having a predetermined shape and a metal body lead-in space which are communicated with each other are formed, and a pressing means which feeds a metal body into the molding space from the metal body lead-in space by pressing the metal body which is inserted into the metal body lead-in space thus forming a molded body having a predetermined shape.

12. A metal molding machine according to claim 11, wherein at least one of the metal body lead-in space and the molding space includes a shearing deforming means which deforms the metal body by shearing.

13. A metal molding machine according to claim 12, wherein the shearing deforming means is constituted of a bent portion which bents the fed metal body.

14. A metal molding machine according to claim 11, wherein a communicating region which is communicated with the metal body lead-in space and a molding region which molds the metal body which passes through the communicating region into a predetermined shape are formed in the molding space and, at the same time, the feeding direction of the metal body to the molding region from the communicating region and the feeding direction of the metal body in the metal body lead-in space are made different from each other.

15. A metal molding machine according to claim 14, wherein the metal molding machine includes a pressure molding means which

allows the metal body which passes through the molding region to project to the outside of the mold and molds a projecting portion into a predetermined shape by pressing.

16. A metal molding machine according to claim 14, wherein the molding region is formed in an approximately cylindrical shape which extends using the communicating region as a proximal end thereof and, at the same time, a hole forming pin which extends toward the proximal end from a distal end of the molding region is formed in the molding region thus enabling the formation of the cylindrical portion in a molded body.

17. A metal molding machine according to claim 16, wherein a cylindrical collar which brings an inner peripheral surface thereof into slide contact with the hole forming pin and an outer peripheral surface thereof into slide contact with an inner peripheral surface of the mold in the molding region is mounted on the hole forming pin and, the metal molding machine further includes a collar control means in which along with the feeding of the metal body into the molding region, a communicating-region-side end surface of the collar is gradually moved to a distal end side of the molding region.

18. A metal molding machine according to claim 17, wherein the metal molding machine includes a hole forming pin control means which moves the collar along the hole forming pin by a predetermined distance and, thereafter, pushes the hole forming pin into the communicating region.

19. A metal molding machine according to claim 18, wherein the metal molding machine includes a cylinder control means which

retracts a cylinder which supplies the metal body into the metal body lead-in space by pressing when the hole forming pin is pushed into the communicating region using the hole forming pin control means.

20. A metal molding machine according to any one of claims 11 to 19, wherein a plurality of metal body lead-in spaces are provided.

21. A metal molded body being characterized in that using a mold in which a molding space having a predetermined shape and a metal body lead-in space which is communicated with the molding space are formed, a metal body which is inserted into the metal body lead-in space is fed into the molding space while applying a predetermined pressure to the metal body thus forming the metal molded body having a predetermined shape, wherein the metal structure of the metal body fed into the molding space is turned into the finer grain structure.

22. A metal molded body according to claim 21, wherein a communicating region which is communicated with the metal body lead-in space and a molding region which molds the metal body which passes through the communicating region into a predetermined shape are formed in the molding space and, at the same time, the feeding direction of the metal body to the molding region from the communicating region and the feeding direction of the metal body in the metal body lead-in space are made different from each other.

23. A metal molded body according to claim 22, wherein the feeding direction of the metal body is bent in the

communicating region.